DOCUMENT RESUME

ED 067 560 CG 007 353

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TITLE Career Awareness/Job Orientation VIA Taped Television Programs. Experimental Study.
INSTITUTION Bucks County Public Schools, Doylestown, Pa.; Nevada Southern Univ., Las Vegas.
PUB DATE May 72
NOTE 43p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Career Planning; Elementary School Students; Employment Opportunities; Evaluation; Jobs; Junior High School Students; *Technical Education; *Vocational Education; *Work Attitudes

ABSTRACT

This paper describes an attempt by the Hazleton, Pennsylvania School District to better utilize its vocational-technical education facilities through attracting more students to this area of educational endeavor. Two programs were provided for the purpose of developing a more positive attitude about work in children, and particularly about selected job areas. A "Job Awareness/Career Awareness" program was set up for elementary students (grades 4, 5, 6) and a "Job Orientation" program (grades 7, 8, 9). A means for carrying out the intention of the Hazleton School District was the use of taped television presentations about selected job areas at the two levels of job awareness/career awareness and job orientation. An attempt was made to determine the effectiveness of the taped programs in developing more positive attitudes of students toward selected careers. The experimental program was generally evaluated as a success. There was conclusive evidence that the program effected a change in the attitudes of the students. (Author/WS)

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HAZLETON SCHOOL DISTRICT

EVALUATION REPORT

CAREER AWARENESS/JOB ORIENTATION VIA TAPED TELEVISION PROGRAMS

EXPERIMENTAL STUDY

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May 22, 1972

CG 007 353

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CAREER AWARENESS/JOB ORIENTATION
VIA TAPED TELEVISION PROGRAMS
EXPERIMENTAL STUDY

INTRODUCTION

The Hazleton, Pennsylvania, School District has become interested in better utilizing its vocational-technical education facilities, through attracting more students to this area of educational endeavor. A possible method of accomplishing this was to provide a "Job Awareness/ Career Awareness" program for elementary students (grades 4-5-6), and a "Job Orientation" program for junior high school students (grades 7-8-9) for the purpose of developing a more positive attitude about work in children, and particularly about selected job areas.

A suggested means for carrying out the above intention of the Hazleton School District was the use of taped television presentations about selected job areas, at the two levels of job awareness/career awareness and job orientation.

PROBLEM STATEMENT

The problem was to determine the effectiveness of the taped television programs in developing more positive attitudes of elementary (grade 6) and junior high school (grade 9) students toward selected careers.

LITERATURE REVIEW

Despite several decades of research, the most efficient way to predict vocational choice is simply to ask the person what he wants

to be. Our best devices do not exceed the predictive value of that method. (16)

Vocational Counseling is a process of helping persons deal with themselves as they perceive themselves living within a particular environment.

Occupational goals are viewed in terms of model environments.

Research literature clearly suggests that vocational choice is the outcome of a person's developmental history.

The young person then provided with a multiplicity of events and/or exposure to a varied type of occupational experiences learns to cope with vocational choices in a more realistic manner.

With or without professional guidance, the pupil perceives what he can do, what he likes to do, and what he dislikes to do.

Once he acquires knowledge about occupations, the pupil tentatively selects an occupation that seems attractive to him financially. This is done because of the broad and general perceptions the pupil has of the various occupations. What the student needs is to develop more differentiated images of varied occupations. If developed in this way, pupils might see themselves in more diverse roles within a given occupation. But the problem arises in devising multi-sensory means for accomplishing this task.

Vocational counseling might be improved by providing pupils a

chance to learn about different occupations through means other than written literature and group talk.

During recent years there have been many projects initiated for the purpose of disseminating occupational information to students through a meaningful approach. Kenyon (10), Beachley (2), Meagher (15), and Hoppoch (7), are only a few of the individuals who have conducted research in the area. In the Vocational Guidance Quarterly, June 1967, Joseph Impellitteri stated that, "In relying upon the counselor as the primary resource to gather, sort, validate, and transmit the tons of occupational literature covering thousands of occupations we are being unrealistic." He goes on to state that "We are asking counselors to accomplish an impossible task; one that is ill-suited to his nature and capabilities. But what other, more effective ways are available to do the job?" This statement was made in connection with a new and innovative project sponsored by Penn State University concerning the use of computers for reaching students with vocational information. Other men such as Hoyt (8), Baer and Roebeo (1), have also acknowledged this need for aiding counselors. The fact that counselors have not done an adequate job in disseminating occupational information was acknowledged in an article written in the April, 1967 edition of the Personnel and Guidance Journal. In this article, LeMay and Warnath (14), found that most students on University Campuses do not know where occupational information can be found and do desire such information. One can assume that if the colleges are failing to provide their students with this type of information that counselors

trained by these colleges would, in turn, follow the same faulty procedure for disseminating occupation information in their local school district. The feasibility of using television for the presentation of occupational information to Junior or Senior High School has already been demonstrated by the Washington County School District in Maryland (2). In this project prominent people were used to discuss their own professions on closed circuit television. The innovative use of mobile television focuses attention on local industries. By making these occupational skills a semi-concrete experience through local industries, pupils develop a readiness for more broadened occupational horizons. Although professionally prepared films by private industry do fill a gap, they do not provide the opportunity for the student to identify immediately with the particular occupation. Initial evidence from the first year of the Hazleton project has indicated that identification becomes much more of a reality when T.V. tapes are not oriented commercially.

Related projects that utilize television for career decisions are:

a. Vocational Guidance Series, Harry Drier, Guidance Counselor, Department of Public Instructors, Madison, Wisconsin.

b. Job Interview Tapes, Darryl Laramore, Coordinator of Vocational Guidance, Sonoma County, Superintendent of School Office, Sonoma, California.

c. Needed Occupational Television Instruction, television programs designed to identify entry level jobs in occupational area, Lawson, William, San Bernardino Valley College, San Bernardino, California.

Each of these programs attempts to determine and select "occupational skills" needed for self-actualization. An exploration of these pre-entry skills are usually based on interest, need and ability. The Hazleton project was intended to develop an awareness/orientation process pertaining to clusters of occupations. Emphasis was placed upon attitudes and values and the relationship of manipulative activities to the instructional program. There is little question that value and attitude behaviors are centered and transmitted through the family and peer relationship. These are most often narrow in scope. It is, therefore, imperative that pupils in the elementary and junior high schools develop an awareness and knowledge of a variety of occupations if more formative positive attitudes are to exist.

PROCEDURES

Program Description

Initially, the Hazleton experimental program was to be carried out and evaluated using a randomly selected group (N=50) of fourth, fifth, and sixth grade students for the Job Awareness/Career Awareness level, and a randomly selected group (N=50) of seventh, eighth, and ninth grade students for the Job Orientation level. The original Job Awareness/Career Awareness level section and the original Job Orientation level section each were to utilize twenty taped television presentations, with the topics for each presentation prepared especially according to objectives designed for the section. The forty television topics (20 per section) were to cover the following job areas: Drafting, Welding, Foundry, Data Processing, Cosmotology, Nursing, Electricity, Electronics, Masonry, Clerical, Air Frame Mechanics,

Air Power Plant Mechanics, Agriculture, Medical, Food Service, Carpentry, Machine Shop, Auto Mechanics, Auto Body Work, Plumbing. The fourth, fifth, and sixth grade students were to view the twenty tapes for their level (objectives for job awareness/career awareness), and the sixth grade students were to be used in the evaluation of the television tape's effectiveness in developing a more positive attitude toward Job Awareness/Career Awareness. The evaluation was to be based on the objectives around which each topic was to be designed. The seventh, eighth, and ninth grade students were to view the twenty tapes at their level (objectives for job orientation), and the ninth grade students were to be used in the evaluation of the television tape's effectiveness in developing a more positive attitude toward Job Orientation. The evaluation in this case also was to be based on the objectives around which each topic was to be designed.

Later, on December 21, 1971, the above experimental program was altered as follows: The twenty taped television presentations to cover twenty job areas for each level were reduced to five job areas per level: Data Processing; Drafting; Food Service; Printing/Graphic Arts (not previously included); and Welding. The format also was changed. Only sixth grade students were to view the tapes and to be used in the evaluation of each taped television presentation for the Job Awareness/Career Awareness level; and only ninth grade students were to view the tapes and to be used in the evaluation of each taped television presentation for the Job Orientation level. In addition to viewing the taped television presentation about each job area,

the ninth grade students also were to engage in a discussion about the job area depicted by the television presentation, with the instructor and the project director. This was the final format of the experimental program.

Sample

The general format of the experimental program has been described briefly. Therefore, this section of the report will describe the evaluation design for the experimental program, and the data collected for the evaluation. The sample (N=50) of sixth grade students for the Job Awareness/Career Awareness section of the program, and the sample (N=50) of ninth grade students for the Job Orientation section of the program, were each randomly selected using the table of random numbers.

Data Instrumentation

The primary purpose of the taped television presentations was to provide additional information or "understanding" about selected job areas; thus cognitive development in selected job areas of the world of work. Cognitive development is accompanied by a corresponding affective change, and since the intended purpose of the experimental program was to develop a more positive attitude toward selected job areas, the measurement of attitude change was the appropriate measure. Instruments for measuring attitude are called "attitude scales". There are three major types of attitude scales: summated rating scales; equal-appearing interval scales; and cumulative scales.

This test instrument selected for use in the evaluation of this experimental program was an attitude scale of the "summated rating" type (also called Likert-type scales). This type of instrument was chosen for two major reasons: the universe of items is conceived to be a set of items of equal "attitude value", thus there is no scale of items, as such, and any one item is the same as any other item in attitude value; and this type of scale allows for intensity of attitude expression, therefore greater response variance can result. (11) The major disadvantage of this type of scale is that individuals often have differential tendencies to use certain type of responses, e.g., extreme responses, neutral responses, agree responses, disagree responses; thus the variance of a summated rating scale may consist of response-set variance, which may serve to confound the attitude variance. (6) However, this disadvantage is compensated for by the fact that the individuals responding to the items are scaled according to overall attitude, and by the use of a random sample.

Summated rating scales were designed, for use as evaluation instruments based on the separate objectives of the two levels of Job Awareness/Career Awareness and Job Orientation, and for each job area presented by the television tapes. Ten separate instruments were developed; five for each of the above levels, one each in the following job areas; Data Processing, Drafting, Food Service, Printing/ Graphic Arts, and Welding.

Five summated rating scales were developed for the Job Awareness/ Career Awareness level. One for each job area indicated above, and

based on the following objectives to depicted in the television presentations, as described by the project director: tools used for the job area; personal qualifications necessary for success in the job area; and the work environment of the job area. Each scale contained six items (three positive items and three negative items) for each of these three objectives, and pertinent to the particular job area, for a total of eighteen items -- nine negative items and nine positive items. The maximum score for any scale was ninety, based on a high response score of five for each item.

Information of importance for each objective was gathered from people active in and/or knowledgeable of the five separate job areas to be depicted in the television presentations. This information then was organized into eighteen items as described above; then these items were written specifically in "sixth grade language". These preliminary scales were administered to sixth grade students in Las Vegas, Nevada for the purpose of establishing readability, comprehension, and expected pretest performance level. In addition, the method of Gardner Murphy and Rensis Likert (Public Opinion and the Individual; New York: Harper & Row, Publishers, 1938.) was used for selecting items for inclusion in the final instruments, and establishing internal consistency.

The same procedure was followed in the development of five summated rating scales for the same five job areas. At the Job Orientation level for ninth grade students, the objectives to be depicted in the television presentations, described by the project director, were: salary to be expected; benefits available; training

required; employment opportunities; unions and/or organizations; and history of employment within the job area. For this level three items were written for each of the six objectives, thus making a total of eighteen items per scale -- nine positive items and nine negative items. Again, the maximum score was ninety for any scale. These items were written specifically in "ninth grade language" for this level. These preliminary scales were administered to ninth grade students in Las Vegas, Nevada for the same purposes as described in the preceding paragraph.

The final ten scales were constructed after making the appropriate corrections for readability, and establishing content and construct validity through administering the scales, interviewing the people who responded to the scales and interviewing persons who were either active in or knowledgeable of the five job areas to be depicted in the television presentation. A pretest performance level of approximately 50 was desired, and obtained. (See Appendix A for a scale used at the Job Awareness/Career Awareness level with the sixth grade students. See Appendix B for a scale used at the Job Orientation level with ninth grade students.)

Evaluation Design

The design selected for the experiment was the simple one-group pretest-posttest, which is conveniently described by Campbell and Stanley. (3) These authors describe the several weak points and strong points of this type of design. However, for this experimental program,

most of the weak points are either minimized or do not apply. For example, the weaknesses of history and maturation do not apply in this case, because the pretest and the posttest (and the experimental treatment) all occurred within an hour of elapsed time, and all subjects remained within the single room in which both tests and the experimental treatment were given. During this short period of time, and with the subjects confined, it is extremely doubtful that any change-producing events (other than the experimental treatment - the television presentation) or maturation of the subjects occurred. (See Apendix C for the schedule of pretesting and posttesting.) The weakness of testing is somewhat valid in this case, but these same authors note that for the test-retest situation, subjects taking the test for the second time, particularly in the case of attitude measure (p.9), the "evidence is very slight", and could go either way (i.e., increase or decrease the posttest score) depending on conditions. Instrument decay is also not applicable to this situation, because of the short time period involved, and the method of scoring the responses (absolute value). The phenomenon of statistical regression is also of slight, if any influence here, since it finds its greatest effect on groups selected for the extremity of a characteristic, whereas the group (sample) for this experimental program was randomly selected. The major strengths of the design are the minimizing of biases which result from differential selection of the sample, and treatment in it; and the minimizing of differential loss of subjects over an extended period of time from pretest to posttest. As a final justification

of this particular design, one must consider the major economic factors, such as available resources for overall funding for the entire experimental project.

Data Analysis

The evaluation data will be presented and discussed in the following order: sixth grade data -- readability, variance interpretation, distribution of pre- and posttest scores, an item analysis by objective/job area, for Data Processing, Drafting, Food Service, Printing/Graphic Arts, and Welding; the ninth grade data will be treated in the same manner and in the same sequence as the sixth grade data, and will follow it.

Before responding to each scale, the subjects in the sixth grade sample were instructed to circle any words that they did not understand. For the ten scales administered to this group of fifty subjects, two subjects each reported one word that they did not understand, and these two words (recreational and data) both were used in the Data Processing scale. Further checking indicated that these same two subjects did not circle these same words on the posttest; thus it may safely be concluded that all items used on the ten scales for this sample were within the knowledge and understanding of the subjects.

The sample variance was used to statistically examine whether or not there was a significant difference between the sample pretest attitudinal variability and the sample posttest attitudinal variability. If a significant variance difference was found to exist, at an acceptable probability level, then it may be argued that the intervening

educational program (the television presentation) had changed the variability of attitudes. Appendix D provides a summary of the sixth grade data for the pre- and posttest means, variances, and the t-values for the test, for significance of difference between correlated variances, for each of the five job areas. The null hypothesis to be tested, states that there is no difference between the pretest variance and the posttest variance for the sample, for any given job area. Thus there were actually five null hypotheses tested, one for each job area. Note that the null hypothesis was rejected at the .025 level for the Printing/Graphic Arts and Welding job areas, at the .25 level for the Data Processing job area, and that there was insufficient evidence to reject the null hypothesis for the Food Service and Drafting job areas. Loosely interpreted, this means that the probability that the change in variability of attitude was due to factors other than the television presentation was .025 (or 2.5/100) for the Printing/Graphic Arts and Welding job areas, and .25 (25/100) for the Data Processing job area. Also, this means there is insufficient evidence to indicate that the television presentation caused the change in sample variance (attitude variability) for the Food Service and Drafting, and the change is probably due to factors involved in sampling error.

The accepted interpretation of an increase or decrease from pretest to posttest for sample variance is that an increase in variance may mean that the effect of the experimental program was to reinforce existing attitudes, producing more extreme attitudes among individuals at both ends of the attitude continuum, while a decrease in variance

may mean that the effect of the experimental program was to produce an attitudinal regression toward greater uniformity. (See G. A. Ferguson. Statistical Analysis in Psychology and Education. New York: McGraw-Hill Book Company, 1966, pp. 183-4.)

Even though attitude variability was not statistically significant for the Food Service and Drafting job areas, it should be noted that in both instances the posttest score means were greater than the pretest score means. This may be regarded as an indication of cognitive improvement concerning these job areas; but it is not statistically appropriate to test these means for a significant difference, particularly since a Likert-type scale was used. (See W. Wiersma. Research Methods In Education. An Introduction. New York: J. B. Lippincott Company, 1969, p. 209.)

The distribution of pretest and posttest scores for the sixth grade sample for each job area is given in Appendix E-1 through Appendix E-5. These data pictorially display the scale total score for each of the fifty subjects for both the pretest and the posttest, over the selected five job areas. Since these data are qualitative in nature, only qualitatively based statements may be derived from them. This display of the data qualitatively indicated that the sample, based on pretest scale scores, appears to be normally distributed, with respect to the variable to be measured (attitude about the selected job areas) and with a larger sample size, the distribution would closely approximate the "normal curve". This lends strength to the sample selection process (randomness), and to the test of

significance between correlated variances. Finally, one can note that a comparison of pretest score ranges with posttest score ranges indicates a general shift toward larger lower values and larger upper values for the posttest. This may be interpreted as an improvement in overall cognitive development regarding individual job areas.

Appendix F gives the average for item means by objective, within each job area. The objectives to be covered by the television presentations for the sixth grade sample were: tools used in the job area; the personal qualifications necessary for success in the job area; and the work environment of the job area. Each scale used six items per objective to assess attitude about a job area. From the data, it appears that more emphasis was placed upon the personal qualifications objective that the other two objectives for all five job areas, while within job areas, certain objectives received less emphasis than others, e.g., the work environment objective for the Drafting and Food Service job areas, and the tools objective for the Printing/Graphic Arts job area.

As with the sixth grade sample, the subjects in the ninth grade sample also were instructed to circle any words that they did not understand. This group, as a whole, indicated that they did not understand eleven different words. The number of subjects involved was five; thus, ninety percent of the sample had no difficulty understanding the intent of the items, and it therefore may be concluded that all items in all scales were written within the comprehension of ninth grade students. The words not understood were as follows, by job area: Data Processing -- fringe benefits, automatic raises;

Drafting -- prospects, corporations, continuously; Printing/Graphic Arts -- automation, professional organizations, apprenticeship; Welding -- apprenticeship, retirement, certifying, automation, hospitalization. All words were understood in the Food Service job area. Finally, only two words were not understood, over all the scales, during the pre-trial testing of the scales using ninth grade students in Las Vegas, Nevada, and neither of these two words appears in the above listing of words not understood by the Hazleton ninth grade students.

Appendix G provides a summary of the ninth grade data for the pre- and posttest means, variances, and the t-values for the test of significance of difference between correlated variances, for each of the selected five job areas. The same explanation regarding the null hypothesis, and the variance interpretation, which earlier was stated for the sixth grade data, also applies to this data in Appendix G. The only exception for interpreting the ninth grade data is that each intervening educational program for this data consists of a television presentation, and a discussion between the subjects, and the project director and the instructor.

Again, five null hypotheses were tested, one for each job area. For the ninth grade sample, the null hypothesis was rejected at the .025 level for the Food Service job area, at the .05 level for the Printing/Graphic Arts job area, at the .25 level for the Drafting job area, and there was insufficient evidence to reject the null hypothesis for the Data Processing and Welding job areas. (Cont'd.)

Loosely interpreted, this means that the probability that the change in variability of attitude for the ninth grade sample (from pretest to posttest) was due to factors other than the intervening educational program (television presentation and discussion) was .025 (or 2.5/100) for the Food Service job area, .05 (or 5/100) for the Printing/Graphic Arts job area, and .25 (or 25/100) for the Drafting job area. As noted earlier (for the sixth grade data) the insufficient evidence to reject the null hypothesis for the Data Processing and Welding job areas may be interpreted as meaning that any change in sample variance (attitudinal variability) for these two job areas of the ninth grade sample is probably due to factors involved in sampling error.

Some cognitive improvement may have occurred in the Welding job area for this sample as indicated by the increase of the posttest mean over the pretest mean, even though the attitude variability was not significant. This same statement is not compatible with the means data for the Data Processing job area. The sample pre- and posttest means were not examined statistically, for reasons given earlier for the sixth grade data.

The distribution of pre- and posttest scores for the ninth grade sample for each job area is given in Appendix H-1 through Appendix H-5. Again, these data pictorially display the scale total score for each of the fifty subjects for both the pretest and the posttest, over the selected five job areas. The same restrictions noted earlier regarding interpretations of qualitative data also apply to these data.

This display of the data qualitatively indicates that the ninth grade sample, based on pretest scale scores, appears to be normally distributed with respect to the variable to be measured (i.e., attitude about the selected job areas), and with a larger sample size, the distribution would more closely approximate the "normal curve". The same conclusions apply here as were stated earlier for the sixth grade data, i.e., "strengthening" acceptance of the sample selection procedure and the t-test of significance between correlated variances. Again, there appeared to be a general shift toward larger lower values and larger upper values for the posttest (with the exception for the Printing/Graphic Arts job area). This may indicate improvement in overall cognitive development regarding those individual job areas that displayed this shift.

Appendix I gives the average for item means by objective, within each job area. The objectives to be covered by the television presentations and the discussions with the project director and the instructor, for the ninth grade sample were: expected salary; benefits available; training required; employment opportunities; unions and/or organizations; and history of employment within the job area. Each scale used three items per objective to assess attitude about a job area. From the data, it appears that more emphasis was placed upon some objectives than upon others. Generally, across all five job areas, training, employment opportunity, and history of employment with the job area, had the highest posttest means, indicating possible emphasis on these objectives. Within job areas, certain objectives appeared to receive

less emphasis than others, e.g., benefits in the Data Processing and Welding job areas, unions and organizations in the Food Service and Printing/Graphic Arts job areas, and salary in the Drafting job area.

SUMMARY ANALYSIS

Generally, the vocational-technical education experimental program at Hazleton, Pennsylvania, may be said to have been successful in changing the attitudes of sixth grade children and ninth grade children (of that school district samples) about the selected five job areas, with the sixth grade experimental program being somewhat more effective than the ninth grade experimental program. However, according to the evaluation data, there are certain qualifications attached to the degree of success of the program -- these will be discussed briefly in the following paragraphs.

The intervening educational programs (television presentations) used with the sixth grade sample were not all equally successful in changing attitudinal variability across the five selected job areas. The intervening educational programs for the Printing/Graphic Arts job area and the Welding job area may be termed successful, while the program for the Data Processing job area was of very limited success, and the programs for the Drafting job area and the Food Service job area were not successful. Some cognitive improvement may have taken place with the sample, and due to the intervening educational program, for the Data Processing, Drafting, and Food Service job areas, as indicated by the higher posttest means. But this cannot be stated conclusively since the difference between the pretest means and the

posttest means could not justifiably be examined for statistical significance.

The sixth grade sample appeared to have been selected from a population in which the variable to be measured (attitude toward the selected five job areas) followed a normal distribution, and all items in all scales were written within the reading level and understanding of the sample of sixth grade students. However, an item analysis by objective and job area, indicated some disparity of emphasis on objectives across all five job areas, and within certain job areas, for the intervening educational programs.

The intervening educational programs (television presentations and discussions) used with the ninth grade sample also were not all equally successful in changing attitudinal variability across the five selected job areas. The intervening educational programs for the Food Service job area and the Printing/Graphic Arts job areas may be termed successful, while the program for the Drafting job area was of very limited success, and the programs for the Data Processing job area and the Welding job area were not successful. Some cognitive improvement may have taken place with the sample, and due to the intervening educational program, for the Drafting job area and the Welding job area, as indicated by the higher posttest means. But again, this cannot be conclusively stated, since the difference between the pretest means and the posttest means could not justifiably be examined for statistical significance.

The ninth grade sample also appears to have been selected from a population in which the variable to be measured (attitude toward the selected five job areas) followed a normal distribution, and all items in all scales were written within the reading level and understanding of this sample of ninth grade students. However, an item analysis by objective and job area again indicated some disparity of emphasis on objectives across all five job areas, and within certain job areas, for the intervening educational programs.

The experimental program time schedule is given in Appendix C. According to this table, the ninth grade sample received a rather "compressed" schedule of pretesting-intervening educational program-posttesting, when compared with the sixth grade sample's schedule. This compressed treatment (and even an overlap in two job areas - Data Processing/Food Service) for the ninth grade sample may have resulted in an adverse effect on this sample's performance level, thus causing the ninth grade experimental program to appear of lesser effectiveness than the sixth grade experimental program in changing attitudes about the five selected job areas.

RECOMMENDATIONS FOR FURTHER RESEARCH

Since the television experimental programs were successful in changing attitudes of pupils in grades six and nine, it is highly recommended to further the research in other career clusters and at different grade levels. First, the influence of the television programs on the attitudes of fifth grade pupils would provide significant data to be used in devising curricular programs. These programs

could be developed around the concept of "doing projects" related directly to formative attitudes for career clusters. Data on fifth versus sixth grade pupils should be derived for the purpose of analysis and implication with respect to ability and psychological growth and development of pupils. Second, the same rationale would hold true in collecting data on the effects of grade eight pupils.

In addition, it is suggested that only one job area per day be scheduled for testing and the intervening educational program. Equal emphasis on objectives across job areas and within job areas might provide for considerable cohesiveness and continuity for the overall experimental program.

Finally, the conclusive evidence that the experimental program had on changing the attitudes of grade six and nine pupils certainly warrants not only a continuation of the study, but also an expansion thereof.

APPENDIX A

Instructions For Administering The 6th & 9th Grade Tests

1. SELECT FIFTY STUDENTS AT RANDOM.

2. PRE-TEST AND POST-TEST (FOR ALL FIVE AREAS).

   a) Have the fifty students take the SAME SEATS EACH TIME for the testing; both pre-test and post-test.

   b) Assign each student a number starting with 1 and ending with 50. The student will use this number for ALL tests; both pre-test and post-test.

   c) Student is to WRITE HIS NUMBER ON THE UPPER RIGHT HAND CORNER of the tests.

   d) COLLECT TESTS IN NUMERICAL ORDER as they will have to be hand scored.

   e) Return to me for scoring, etc.

   f) TIME FOR TESTS should be about 10-15 MINUTES.

   g) Make sure NO NON-READERS are selected.

   h) Have students CIRCLE WORDS that THEY DO NOT UNDERSTAND on any of the items.

   i) The person administering the tests should explain the response system at the top -- it is all very simple, and rather self-explanatory, but some of the children could get confused.

3. Treatment -- between pre-test and post-test (TV film is discussed).

APPENDIX A

Data Processing

SA - Strongly Agree A - Agree U - Undecided
SD - Strongly Disagree D - Disagree

Place X in box for your answer

		SA	A	U	D	SD
1.	A data process worker is generally not too tired from working to enjoy recreational activities after work					
2.	A person who has trouble picking things up and putting them in a certain place can be a data process worker					
3.	The job of the data process worker is hard and tiring, and he must work long hours					
4.	In a data processing room there are several people busily working but there is time for them to talk to each other.					
5.	A data process worker works by himself most of the time and he does not meet many people.					
6.	A data process worker can do pretty much what he wants to do in the way that he does his job					
7.	A person who does not think very well and who makes a lot of mistakes can still be a data process worker					
8.	The data process worker operates machines that do mathematics, but he still has other things to do.					
9.	A data process worker has to learn to use several different machines that each do something different					
10.	A data process worker works in a clean and comfortable room filled with quietly buzzing machines					
11.	Working in a data processing room is not fun because of the noisy and dirty machines.					
12.	A data process worker uses his hands and eyes a lot, and he must be able to move them quickly and together.					
13.	A data process worker knows how to operate only one machine which does a special job.					
14.	A data process worker spends most of the time on the job doing dull and boring tasks					
15.	A data process worker has to be very careful in his work to avoid making mistakes					
16.	A data process worker has to know how to use many different tools so that he can fix his machine if it breaks down.					
17.	The machines that a data process worker uses on his job are complicated, and special repairmen are needed when they break down					
18.	A data process worker must be able to follow directions.					

Form 6B RB/JBC 1972

APPENDIX B

Drafting

SA - Strongly Agree A - Agree U - Undecided
SD - Strongly Disagree D - Disagree

Place X in box for your answer

		SA	A	U	D	SD
1.	A good draftsman's total yearly income is greater than that of unskilled workers					
2.	Attending a technical school or junior college is the best way to become a draftsman					
3.	If a draftsman is sick and has to stay home, he usually is still paid for the time he is off work					
4.	Draftsmen generally belong to a professional organization instead of a union					
5.	Draftsmen must be continuously seeking work					
6.	The future demand for good draftsmen is very limited, therefore job prospects for them are not good					
7.	Experienced draftsmen are usually paid by the hour, therefore the longer they work, the more money they earn					
8.	Very few draftsmen learn their job through experience only					
9.	Large manufacturing corporations have need for good draftsmen each year					
10.	An experienced draftsman is paid a certain amount of money, or salary, for each week or month that he works					
11.	Paid vacation periods are part of the job benefits for most draftsmen					
12.	A draftsman must join some kind of organization connected with his kind of work					
13.	No special training or education is necessary to become a draftsman					
14.	A draftsman is generally self-employed, that is he does not work for a company					
15.	A company employed draftsman receives no retirement benefits except what he saves for himself					
16.	All Draftsmen must belong to a draftsman's union					
17.	A draftsman is often out of work for long periods of time each year					
18.	A good draftsman has little trouble finding employment					

Form 9A
RB/JBC
1972

APPENDIX C

Schedule Of Pretesting And Posttesting

Ninth Grade *		Sixth Grade	
9:00 - 9:15	Pretest Data Processing	9:30 -	Pretest Drafting **
9:45 - 10:15	Posttest Data Processing	10:15 -	Posttest Drafting **
10:00 - 10:15	Pretest Food Service	10:45 -	Pretest Food Service **
10:45 - 11:00	Posttest Food Service	11:30 -	Posttest Food Service **
11:00 - 11:15	Pretest Drafting	1:00 -	Pretest Data Processing **
11:45 - 12:00	Posttest Drafting	1:30 -	Posttest Data Processing **
12:30 - 12:45	Pretest Welding	9:30 -	Pretest Welding ***
1:15 - 1:30	Posttest Welding	10:10 -	Posttest Welding ***
1:30 - 1:45	Pretest Printing/Graphic Arts	1:00 -	Pretest Printing/Graphic Arts ***
2:15 - 2:30	Posttest Printing/Graphic Arts	1:30 -	Posttest Printing/Graphic Arts ***

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* All tests given on March 21, 1972.

** Tests given on March 7, 1972.

*** Tests given on March 8, 1972.

All testing done at the Hazleton Vocational-Technical School Library by Mrs. Nancy Gilgannon. All subjects assigned to same seats for pretesting and posttesting. Experimental treatment (television presentation) given between pre- and posttest.

APPENDIX D

Summary Of Sixth Grade Data

N = 50

Data	Mean		Variance		Test For Sig. of Diff. Between Corr. Var.	
	Pre	Post	Pre	Post	t	Sig. Level
Data Processing	64.12	68.86	28.41	28.41	1.3628	0.25 **
Drafting	64.62	67.70	45.56	31.02	0.6557	<0.50 #
Food Service	66.58	69.78	28.30	21.34	0.2615	<0.50 #
Printing/ Graphic Arts	62.72	62.42	21.34	19.54	2.4143	0.025 *
Welding	67.26	67.70	14.67	27.77	2.5227	0.025 *

The null hypothesis is: s^2 pretest - s^2 = 0 posttest

* reject the null hypothesis at the .025 level.
** reject the null hypothesis at the .25 level.

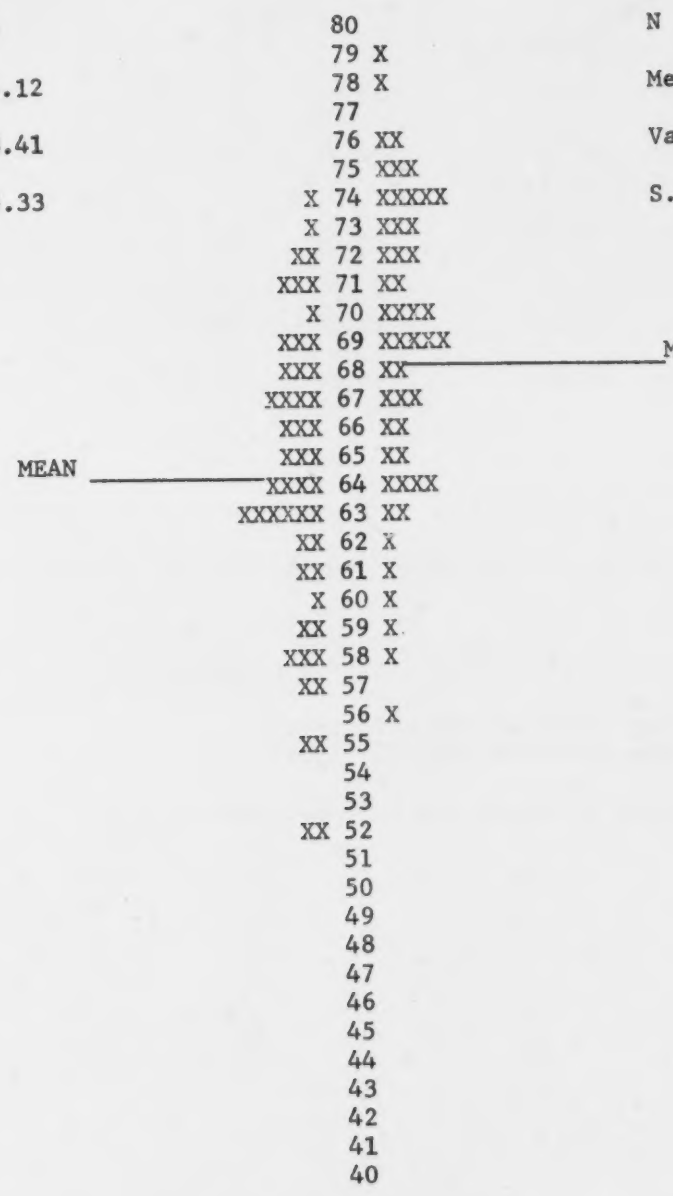
insufficient evidence to reject the null hypothesis.

APPENDIX E-1

Data Processing
Sixth Grade

Pre-test	
N	50
Mean	64.12
Variance	28.41
S.D.	5.33

Post-test	
N	50
Mean	68.86
Variance	28.41
S.D.	5.33



APPENDIX E-2

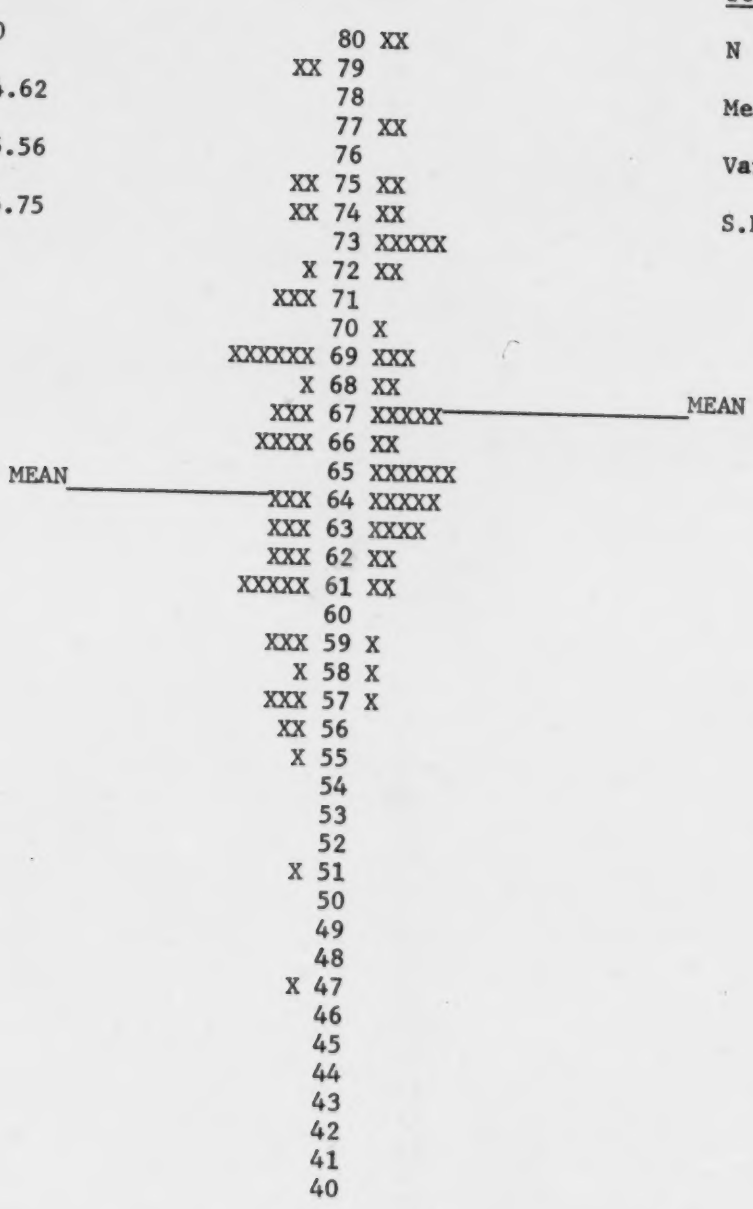
Drafting
Sixth Grade

Pre-test

N	50
Mean	64.62
Variance	45.56
S.D.	6.75

Post-test

N	50
Mean	67.70
Variance	31.02
S.D.	5.57



APPENDIX E-3

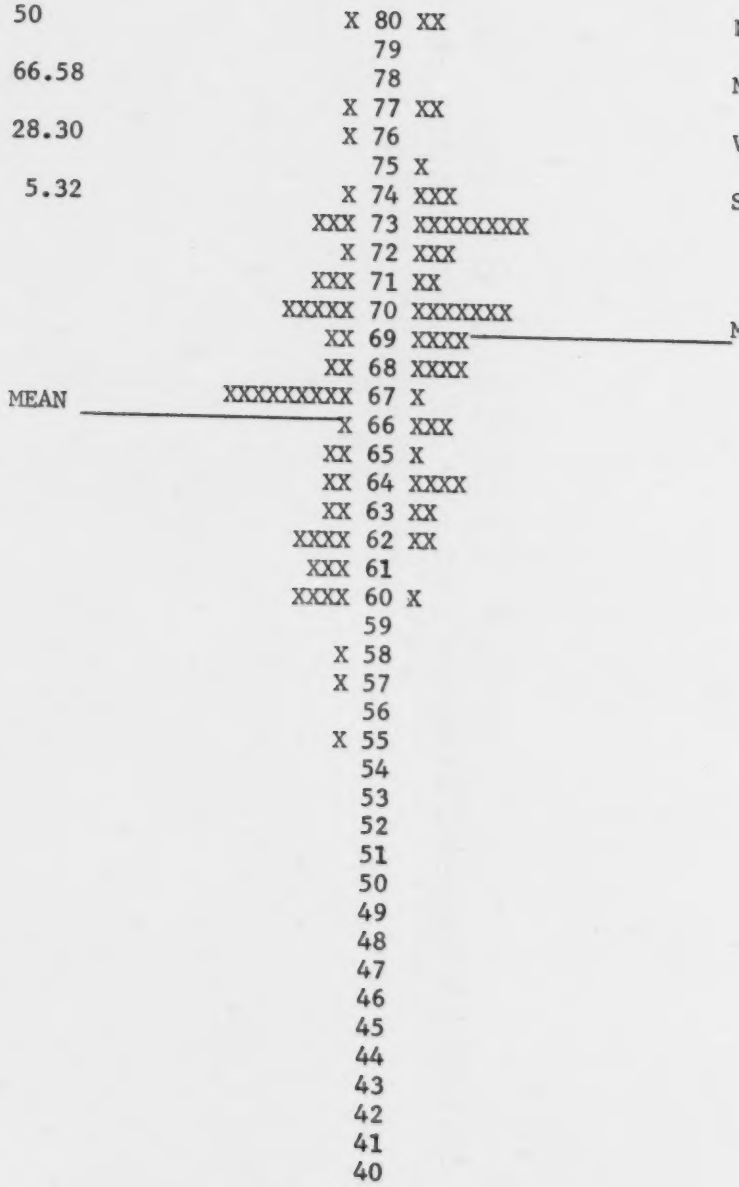
Food Service
Sixth Grade

Pre-test

N	50
Mean	66.58
Variance	28.30
S.D.	5.32

Post-test

N	50
Mean	69.78
Variance	21.34
S.D.	4.62

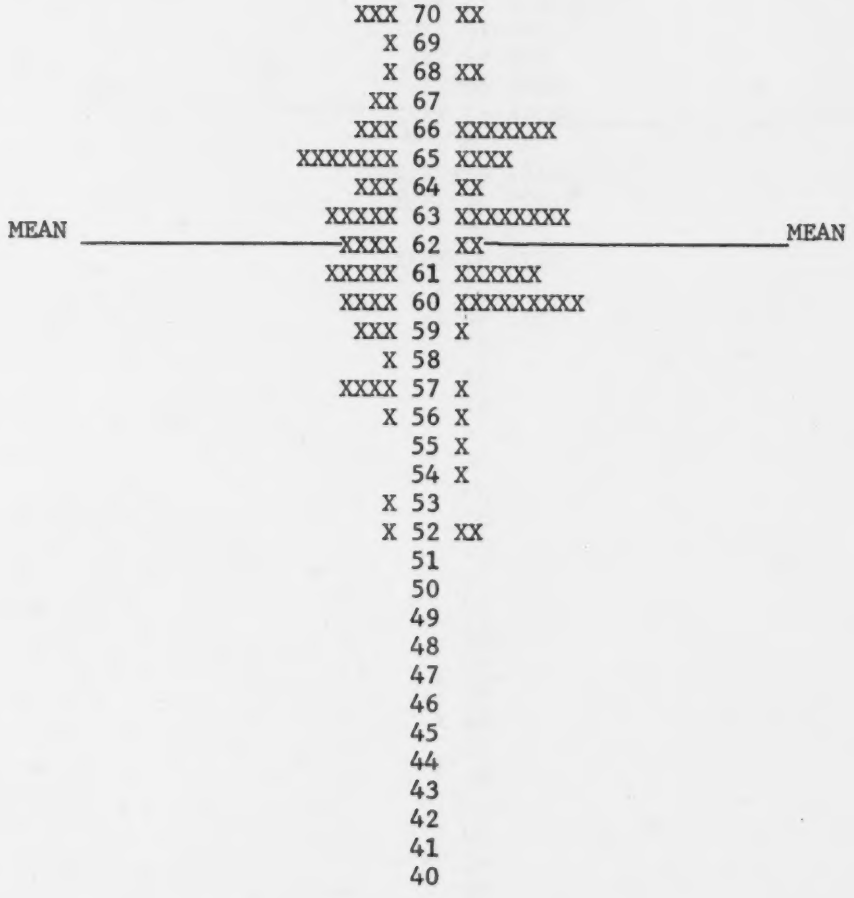


APPENDIX E-4

Printing/Graphing Arts
Sixth Grade

Pre-test	
N	50
Mean	62.72
Variance	21.34
S.D.	4.62

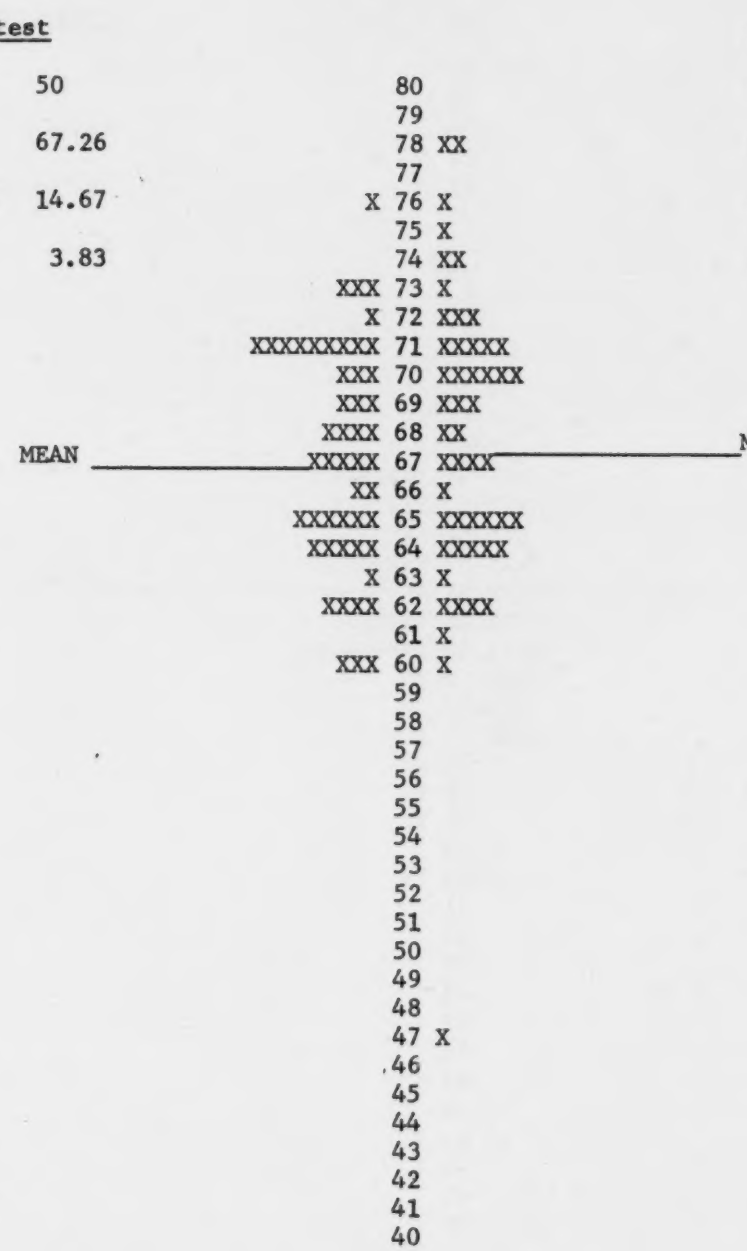
Post-test	
N	50
Means	62.42
Variance	19.54
S.D.	4.42



APPENDIX E-5

Welding
Sixth Grade

Pre-test			Post-test	
N	50		N	50
Mean	67.26		Mean	67.70
Variance	14.67		Variance	27.77
S.D.	3.83		S.D.	5.27



APPENDIX F

Sixth Grade
Average Item Mean By Objective Within Job Area *

	Data Processing		Drafting		Food Service		Printing/ Graphic Arts		Welding	
Objective	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Tools	3.52	3.93	4.01	3.93	3.89	3.96	3.38	3.16	3.69	3.56
Personal Qualifications	3.74	4.19	3.71	4.00	3.80	4.19	3.61	3.69	3.71	4.21
Work Environment	3.41	3.69	3.22	3.35	3.41	3.48	3.46	3.56	3.80	3.84

* N=6 Items Per Objective.

APPENDIX G

Summary Of Ninth Grade Data

N = 50

	Mean		Variance		Test For Sig. of Diff. Between Corr. Var.	
	Pre	Post	Pre	Post	t	Sig. Level
Data Processing	65.02	65.42	37.21	30.69	0.5235	<0.50 #
Drafting	63.68	67.10	32.26	34.46	1.1864	0.25 ***
Food Service	61.96	62.00	19.27	18.15	2.3781	0.025 *
Printing/ Graphic Arts	60.62	61.40	20.33	25.20	2.0674	0.05 **
Welding	65.36	67.50	33.99	27.88	0.5249	<0.50 #

The null hypothesis is: s^2 pretest - s^2 = 0 posttest

* reject the null hypothesis at the .025 level.
** reject the null hypothesis at the .05 level.
*** reject the null hypothesis at the .25 level.

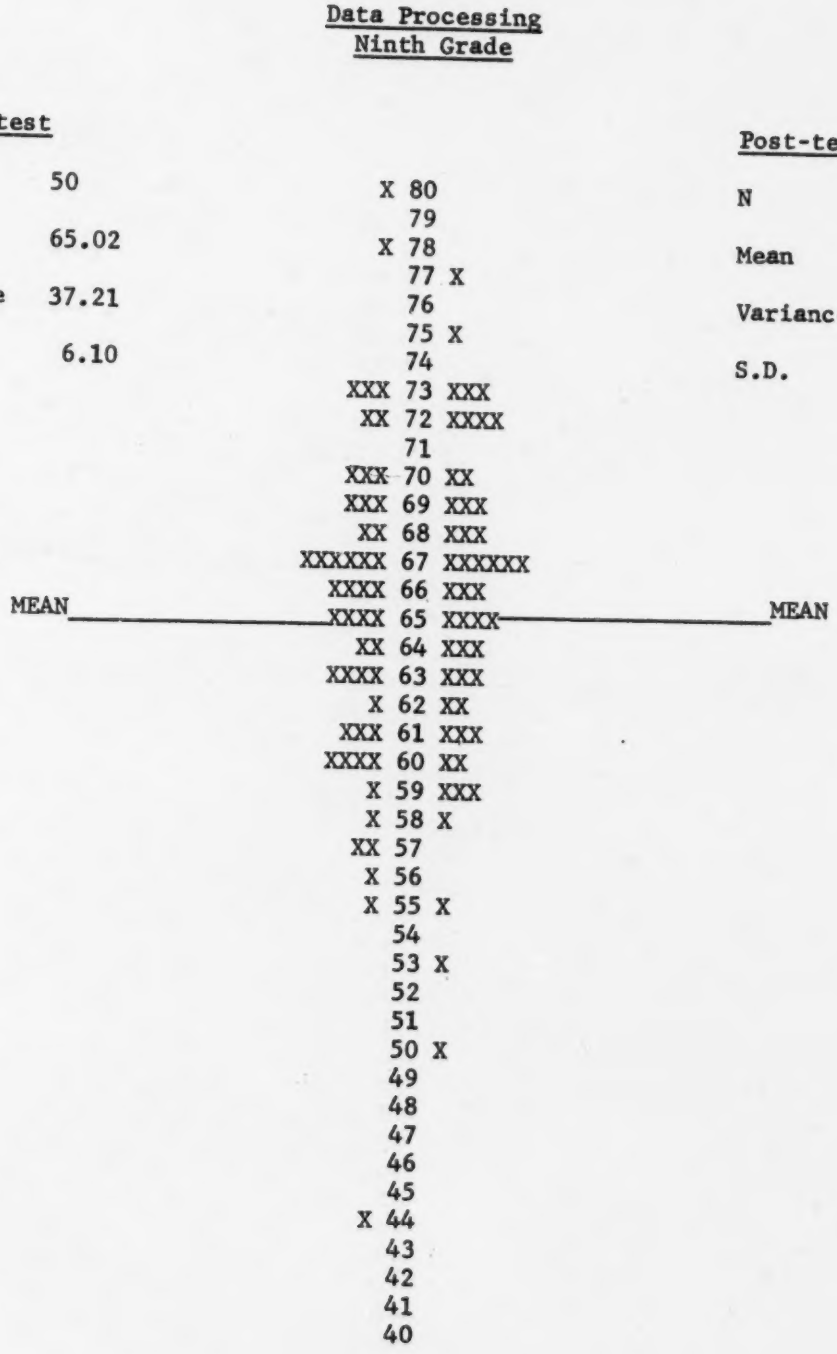
insufficient evidence to reject the null hypothesis.

APPENDIX H-1

Data Processing
Ninth Grade

Pre-test	
N	50
Mean	65.02
Variance	37.21
S.D.	6.10

Post-test	
N	50
Mean	65.42
Variance	30.69
S.D.	5.54

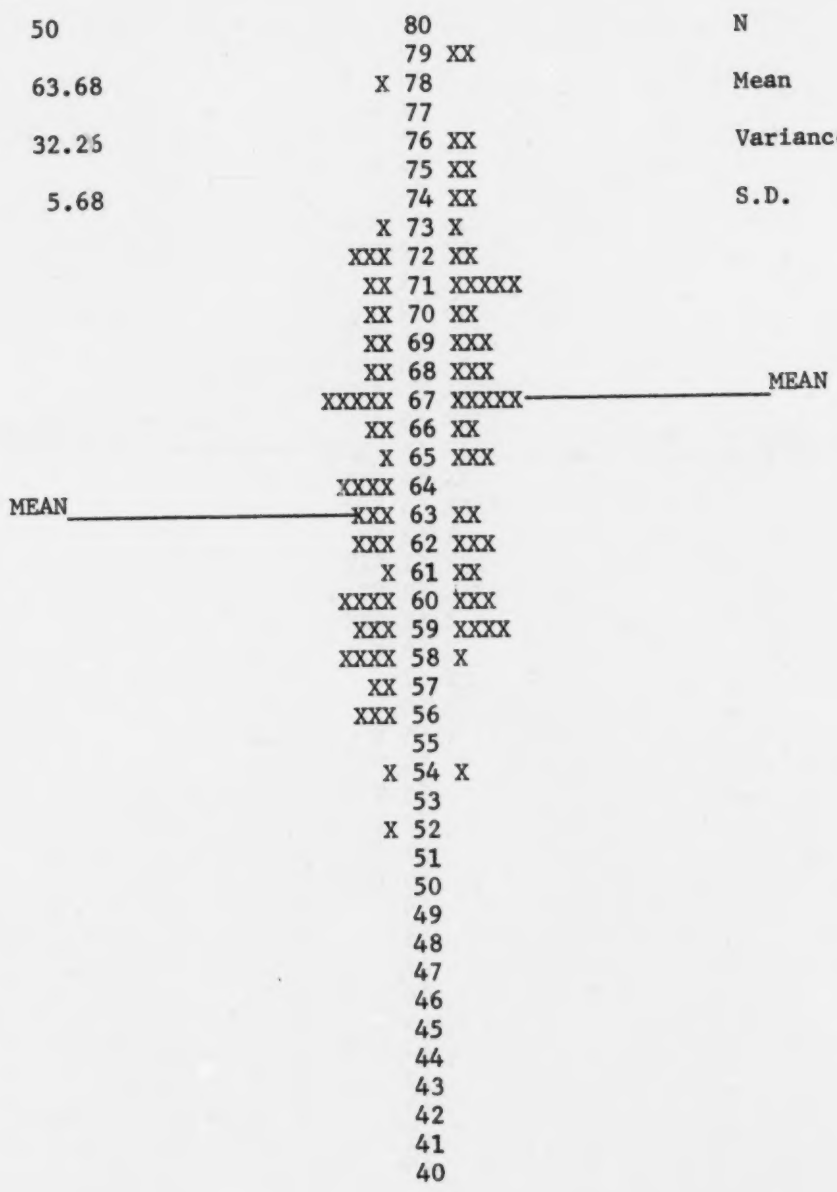


APPENDIX H-2

Drafting
Ninth Grade

Pre-test	
N	50
Mean	63.68
Variance	32.25
S.D.	5.68

Post-test	
N	50
Mean	67.10
Variance	34.46
S.D.	5.87

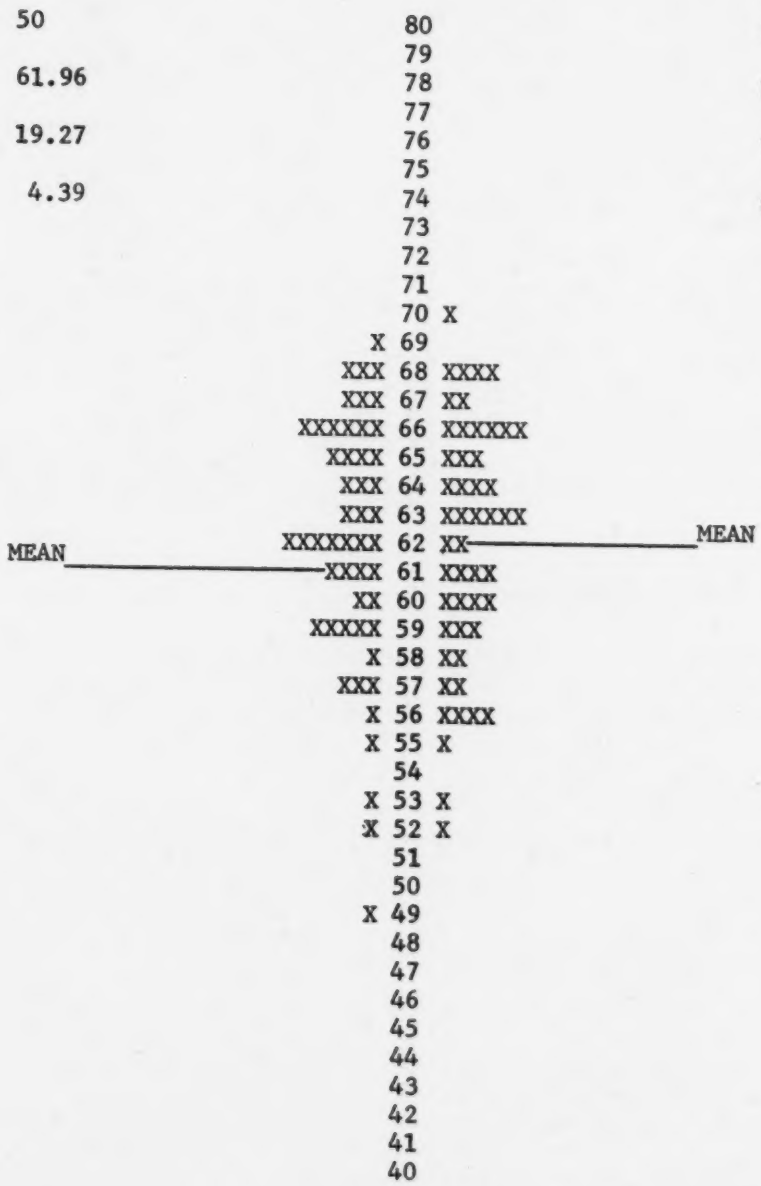


APPENDIX H-3

Food Service
Ninth Grade

Pre-test	
N	50
Mean	61.96
Variance	19.27
S.D.	4.39

Post-test	
N	50
Mean	62.00
Variance	18.15
S.D.	4.26

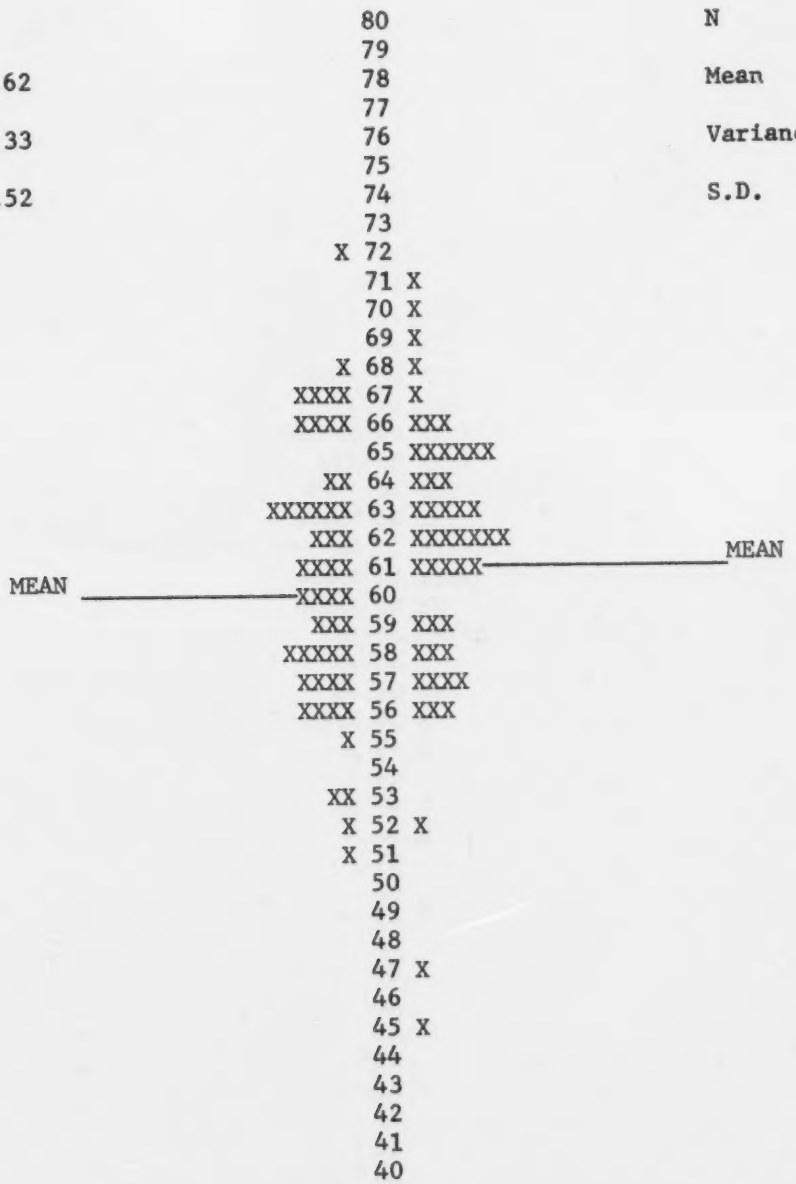


APPENDIX H-4

Printing/Graphic Arts
Ninth Grade

Pre-test	
N	50
Mean	60.62
Variance	20.33
S.D.	4.52

Post-test	
N	50
Mean	61.40
Variance	25.20
S.D.	5.02

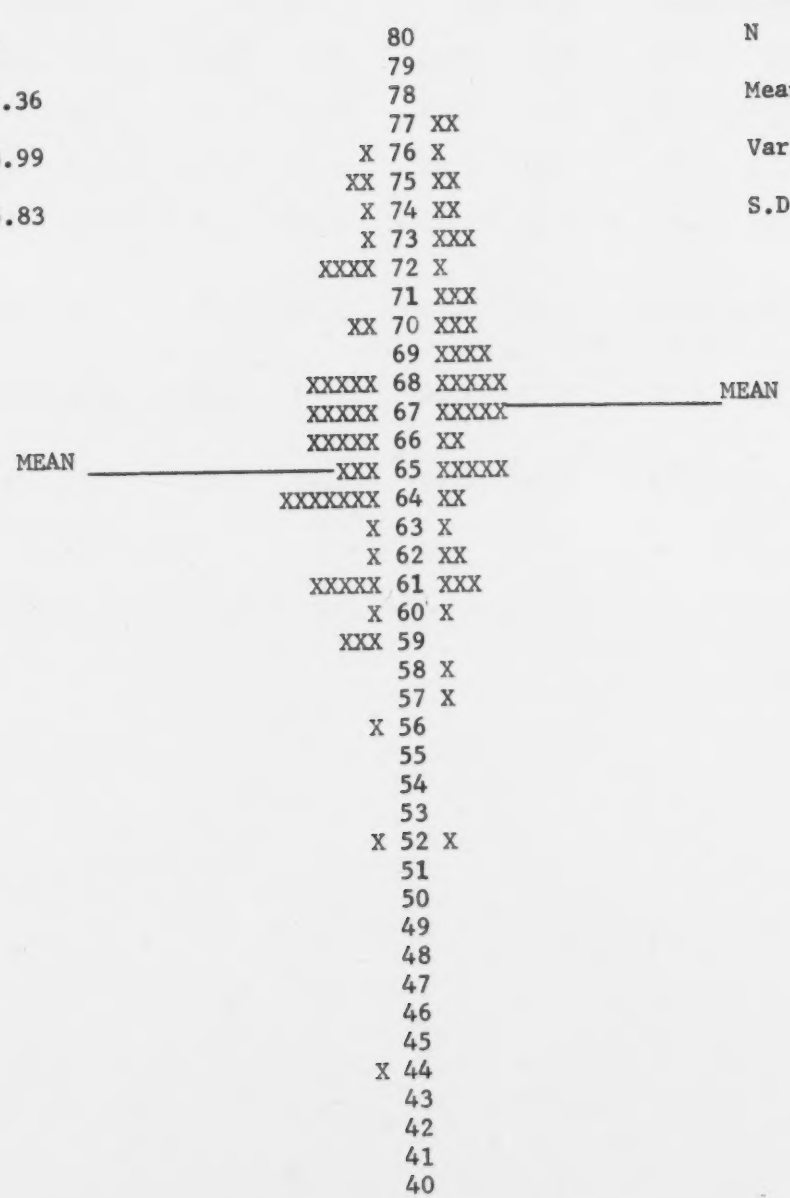


APPENDIX H-5

Welding
Ninth Grade

Pre-test	
N	50
Mean	65.36
Variance	33.99
S.D.	5.83

Post-test	
N	50
Mean	67.50
Variance	27.88
S.D.	5.28



APPENDIX I

Ninth Grade
Average Item Mean By Objective Within Job Area *

	Data Processing		Drafting		Food Service		Printing/ Graphic Arts		Welding	
Objective	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Salary	3.13	3.39	3.25	3.29	3.59	3.79	3.57	3.46	3.89	3.87
Benefits	3.10	3.07	3.37	3.67	3.37	3.03	3.31	3.39	3.38	3.41
Training	4.15	4.03	4.15	4.25	3.52	3.59	2.97	3.09	3.85	3.93
Employment Opportunity	4.02	4.08	3.75	3.76	3.70	3.92	3.35	3.26	3.71	3.91
Unions & Organizations	3.34	3.38	3.17	3.46	3.07	2.86	3.30	3.06	3.36	3.46
History of Employment	3.91	3.83	3.54	3.94	3.41	3.47	3.70	3.87	3.61	4.07

* N= 3 Items Per Objective.

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